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A new species of *Paradendryphiopsis* from Portugal

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Abstract — *Paradendryphiopsis pleiomorpha* sp. nov., found on the bark of an unidentified plant in Braganza, Portugal, is described and illustrated. It is distinguished by conidia that are catenulate, mostly 1–3-septate, usually ellipsoid or obclavate, navicular to oblong, smooth, with pale brown ends and brown at the middle, formed by blastic mode through the conidiogenous locus on unbranched, macronematous conidiophores and by a "thallic-arthric" *Bahusakala*-like synanamorph, which arises from the same conidiophores and vegetative hyphae. A key to *Paradendryphiopsis* species is presented.

Key words — systematics, anamorphic fungi

Introduction

Ellis (1976) erected the genus *Paradendryphiopsis* for *P. cambrensis* M.B. Ellis (type species), found on dead wood of *Quercus* sp. in Wales. The author remarked that primary characteristics of the genus are monotretic conidiogenous cells and thin-walled, catenulate conidia. Hughes (1979) added a second species, *P. laxa* (H.J. Huds.) S. Hughes, and provided several illustrations and commentaries on

conidium ontogeny in *P. cambrensis*. Regarding *P. cambrensis*, Hughes (1979) wrote,

> "Conidia are blastic rather than tretic as described, the deeply pigmented and conspicuous outer wall of the conidiogenous cell is constricted at its apex but entirely continuous with that of the conidium. Acropetal chains of two or three conidia are produced. When the conidium is mature the inner wall of the conidiogenous cell retreats somewhat from the apex and appears as a convex dome. Sometimes the base of the conidium may be temporarily attached, by means of a short denticle, to the retreated inner wall after the outer wall has already ruptured".

Morgan-Jones et al. (1983) followed the same criteria when they described the third species, *Paradendryphiopsis anomala* Morgan-Jones et al., and treated the conidiogenous cells as monoblastic rather than tretic since continuity is clear between the wall of the conidiogenous cell and that of the conidium. During a November 2007 survey of microfungi in the Montesinho and Douro Natural Park (Portugal) as part of a mycological survey called "Flora Micológica Ibérica," a conspicuous fungus from the genus *Paradendryphiopsis* was collected. The specimen showed differences from previously described taxa and is proposed as new to science.

Materials and methods

Plant material was sampled during a mycological survey in the Montesinho Natural Park, Braganza, Portugal. Individual collections were placed in paper and plastic bags, taken to the laboratory, and treated according to Castañeda (2005) and Castañeda et al. (2010). Mounts were prepared in polyvinyl alcohol-glycerol (8 g in 100 ml of water + 5 ml of glycerol) and measurements made at 1000× magnification. Micrographs were obtained with a Zeiss Axio-Imager M1 light microscope.

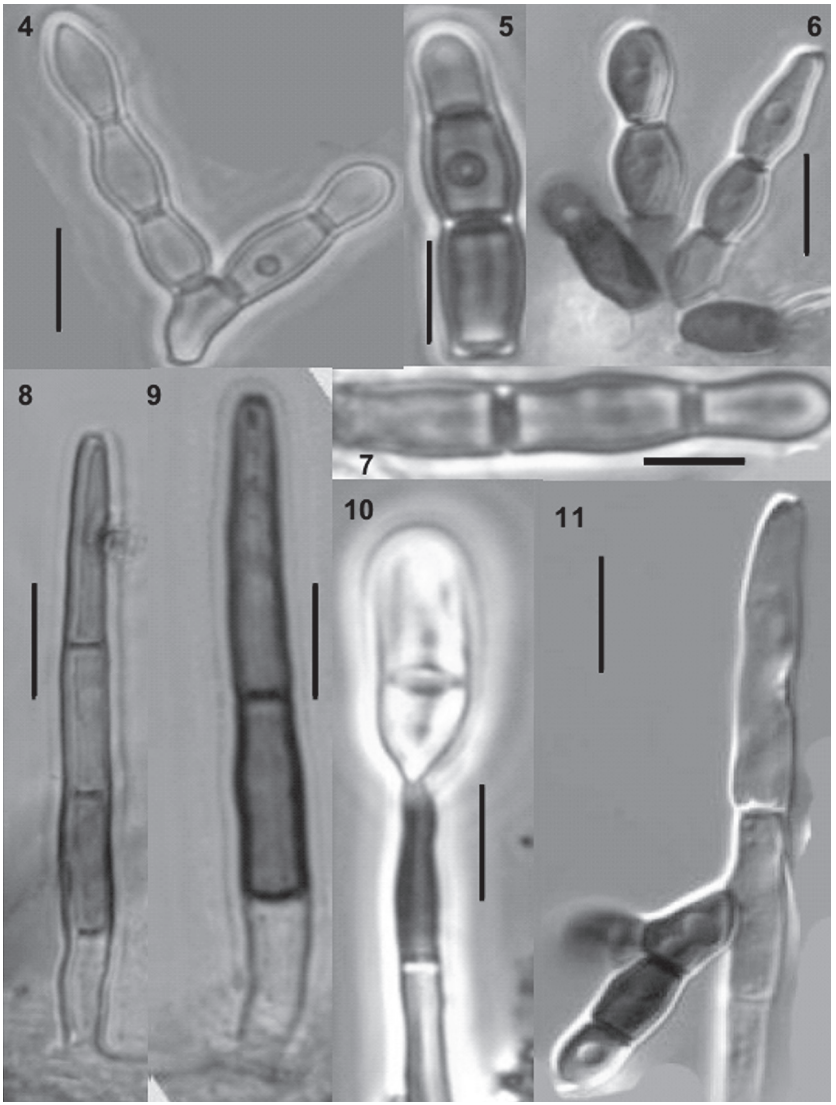
Taxonomy

Paradendryphiopsis pleiomorpha R.F. Castañeda, Silvera, Gené & Guarro, **sp. nov.**
MycoBank MB 518830 Figs 1–14

Coloniae in substrato naturali effusae, pilosae et funiculosae et interdum granulosae, atrobrunneae. Mycelium partim superficial et partim in substrato immersum, ex hyphis septatis, ramosis, subhyalinis vel dilute brunneis, laevibus, 3–5 µm diam., compositum. Conidiophora mononematosa, macronematosa, simplicia, erecta, recta, cylindrica, 2–6-septata, laevia, irregulartim pigmentata, subhyalina vel dilute brunnea ad basim et brunnea vel dilute brunnea ad apicem, interdum fumoso-brunnea vel atrofumoso-brunnea, 40–150 × 4–6 µm. Cellulae conidiogenae monoblasticae, terminales, determinatae, brunneae vel dilute brunneae, interdum fumoso-brunneae vel atrofumoso-brunneae, 25–40 × 4–5µm. Conidia ellipsoidea, aliquot obclavata, ad usque oblonga, raro navicularia, blasto-catenulata, 1–3 septata, plerumque 2- septata, laevia, 17–30 × 6–9 µm, sicca, utrimque

Fig. 1-3. *Paradendryphiopsis pleiomorpha* photomicrographs from holotype (IMI 398786). Conidia and conidial chain. Scale bars = 10 µm.

dilute brunnea et cellula centralis atrobrunnea, interdum irregulartim pigmentata cum unica cellula basalis vel apicalis dilute brunnea et cetero atrobrunnea vel atrofumoso-brunnea, praedita. Synanamorpha *ad genus Bahusakala similis, nonnumquam ipsis ex hyphis et conidiophoris exoriens cum conidiophoris micronematis, ramosis et irregulartim fasciculatis, ramoconidia et conidia "thallica-arthrica", catenulata, per disarticulationem*



Figs. 4–11. *Paradendryphiopsis pleiomorpha*, photomicrographs from holotype (IMI 398786). 4-7. Conidia of the *Bahusakala*-like synanamorph. 8–11. Conidiophores and conidiogenous cells, young attached conidium and *Bahusakala*-like synanamorph arising laterally from a conidiophore. Scale bars = 10 μm.

ramorum producto, oblonga, doliiformia vel in forma plus minusve litterae Graecae upsilon, ex unicellularia, atrofumoso-brunnea vel atrobrunnea, laevia, sicca, 4–17 × 4–7 µm. Teleomorphosis ignota.

Type: Portugal. Braganza, Montesinho Natural Park, on bark of an unidentified plant, 14.XI.2007. R.F. Castañeda, C. Silvera & J. Capilla (**Holotype**: IMI 398786; **Isotype**: FMR 10132).

Etymology: Greek, *pleio-*, meaning more than usual; *-morpha*, referring to existing forms of conidium ontogeny.

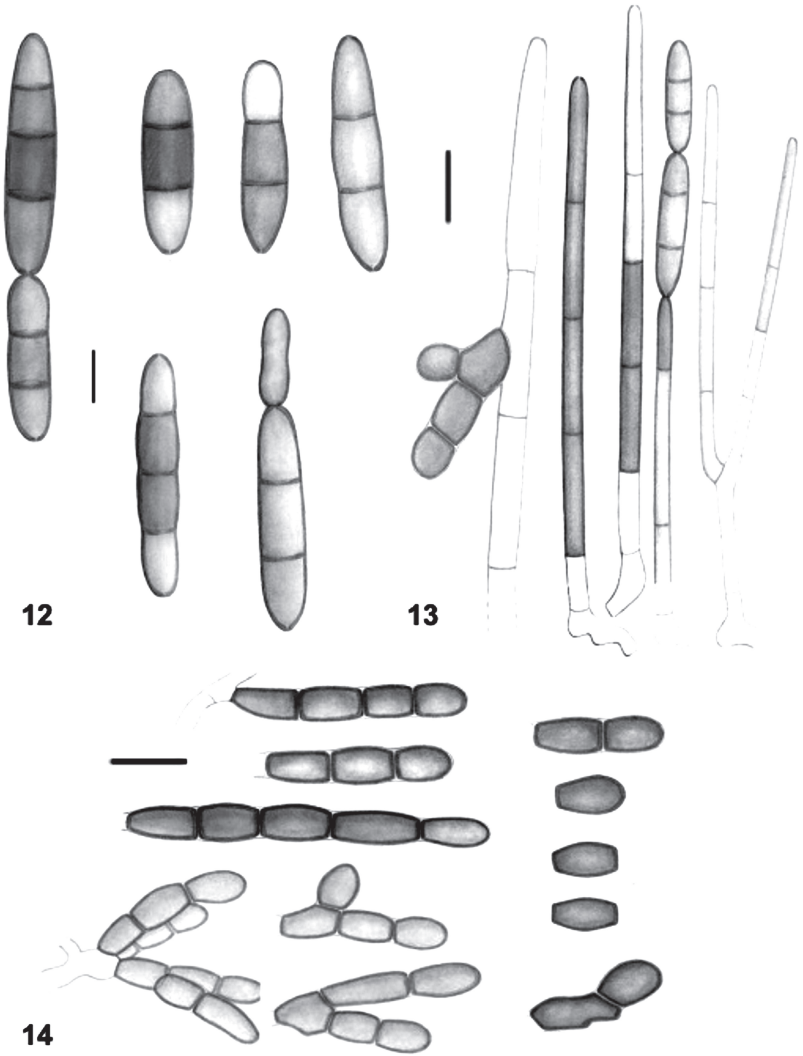
Colonies on the natural substrate effuse, hairy and funiculose, sometimes granular, dark brown. Mycelium superficial and immersed; hyphae septate, branched, 3–5 µm diam., smooth-walled, subhyaline or pale brown. Conidiophores mononematous, macronematous, simple, erect, straight, cylindrical, 2–6-septate, smooth, subhyaline or pale brown at the base and brown or pale brown towards the apex, but sometimes irregularly pigmented grayish brown or dark grayish brown, 40–150 × 4–6 µm. Conidiogenous cells monoblastic, integrated, terminal, determinate, brown or pale brown, sometimes grayish brown to dark grayish brown, 25–40 × 4–5 µm. Conidia ellipsoid, somewhat obclavate, rarely navicular or oblong, blastocatenulate, 1–3-septate, mostly 2-septate, smooth-walled, 17–30 × 6–9 µm, dry, usually pale brown at the ends (sometimes only one end paler than the rest) and dark brown to dark grayish brown at the middle. Synanamorph *Bahusakala*-like, arising from the same vegetative hyphae and conidiophores. Conidiophores micronematous, branched, irregularly fasciculate, dark brown to dark grayish brown. Ramoconidia and conidia "thallic-arthric", catenulate, oblong, doliiform, broadly Y-shaped, unicellular, dark gray-brown or dark brown, smooth, dry, 4–17 × 4–7 µm, forming by disarticulation of the conidiogenous branches. Teleomorph unknown.

Paradendryphiopsis pleiomorpha slightly resembles *P. cambrensis*, but that species has discrete conidiogenous cells and lacks a *Bahusakala*-like synanamorph. The pigment distribution in the conidiophores and conidia in that species is also quite distinct from *P. pleiomorpha* and can be easily differentiated (see key below).

Key to *Paradendryphiopsis* species

1 Conidiogenous cells discrete 2
Conidiogenous cells integrated 3

2(1) Conidia ellipsoid, 3-septate, with end cells pale brown to subhyaline and intermediates ones brown, smooth, dry, blastocatenulate, 12–19 × 4–5 µm ..... *P. cambrensis*
Conidia ellipsoid to clavate or turbinate, narrowed to truncate base, 2–3-septate, mid to dark brown, end cells pale, with dark brown bands at the septa, smooth, blastocatenulate dry, 16–30 × 8–12 µm ..... *P. laxa*



Figs. 12–14. *Paradendryphiopsis pleiomorpha*, drawings from holotype (IMI 398786). 12. Conidia. 13. Conidiophores, conidiogenous cells, conidia, and *Bahusakala*-like synanamorph arising from a conidiophore.14. Conidiophores and conidia of the *Bahusakala*-like synanamorph. Scale bars = 10 μm.

3(1) Conidia blastocatenulate, ellipsoid, somewhat obclavate, rare navicular or oblong, 1–3-septate, mostly 2-septate, smooth-walled, dry, pale brown at the ends, dark brown at the middle, sometimes irregularly pigmented, with basal or apical cell pale brown and dark brown to dark grayish-brown the rest, 17–30 × 6–9 µm ..... *P. pleiomorpha*
Conidia solitary, ellipsoid, smooth, 3–4-septate, brown, with the outer cells paler, usually slightly constricted at the end septa, dry, slightly truncated at the base, 24–26 × 11–13 µm ..... *P. anomala*

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